REMOVAL OF REACTIVE RED 120 BY USING HYDROTALCITE
Zinc-Aluminium-Nitrate (Zn-Al-NO_3)

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ABSTRACT

REMOVAL OF REACTIVE RED 120 BY USING HYDROTALCITE Zinc-Aluminium-Nitrate (Zn-Al-NO_3)

This objectives of the study was to remove the Reactive Red 120 color where can bring harmf to the human body and environment. Color is the most important thing in our daily life. Color also have a lot of use especially in 'batik' and tekstile industry. We may be dont really realize that the colors from industry is been removed easily to the river that will cause negative side effect were diluted. So, this project were looked at the efficiency of the hydrotalcite Zinc-Aluminium-Nitrate (Zn-Al-NO_3) also called LDHs that can remove the Reactive Red 120 dye which can cause dangerous to health. The preparation of the LDHs was through out the co-precipitation. Then, the LDHs was characterized and determine using X-Ray Diffractometer, Fourier Transform Infrared, and Scanning Electron Microscope. The analysis about the adsorption of the dye were used several parameter such as contact time, different initial concentration, adsorbent dosage, pH, temperature and particle size. As the results, the adsorption efficiency for 150 mg/L of the dye at 25 oC in 4 hours with 0,15g adsorbent is 99.85%. From the experiment also can got the Langmuir and Freundlich isotherm. The maximum adsorption capacity (mg/g) of Reactive Red 120 on ZnAlNO_3-LDHs was 81.9672 mg/g and dimensionless constant separation factor R_L was 0.7259. The adsorption experiments proven that ZnAlNO3-LDHs were effective in removing anionic dye (Reactive Red 120). The percentage of adsorption increased with increasing in contact time, adsorbent dosage, temperature and decreasing the particle size. ZnAlNO3-LDHs were found capable to adsorb low concentration of anionic dye, resulting on the different charged on dye and the different adsorption mechanism between it.